

The past and future(s) of environmental peacebuilding

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After the end of the First World War, scholarly interest in the causes of war and potential drivers of peace flourished. Over the subsequent 50 years, this resulted in the institutionalization of disciplines such as International Relations (IR), security studies and peace and conflict studies. With the end of the Cold War, the preponderant focus of these fields on state security and interstate war gave way to more expansive work on civil wars, post-conflict peacebuilding and human security. In this context, intense debates emerged about whether the scarcity of renewable resources such as water or land, or the abundance of oil, diamonds and other valuable commodities, would increase the risks of conflict.¹ Triggered by the first UN Security Council debate on climate change and security, along with the award of the Nobel Peace Prize to the Intergovernmental Panel on Climate Change and Al Gore (both in 2007), the debate revived in the mid-2000s with a focus on climate change and conflict.²

Environmental peacebuilding emerged from this broad field of environment, conflict and peace, weaving together a number of related threads that address both environmental risks of conflict and environmental opportunities for peace. Alongside contributions on natural resources and conflict and on climate change and conflict, the literature includes work on the environmental consequences of war,³ the use of natural resources to finance armed conflict,⁴ the dynamics of disasters and conflict,⁵ environmental factors in peace negotiations,⁶ the

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¹ Jon Barnett, *The meaning of environmental security: ecological politics and policy in the new security era* (London: Zed, 2001); Thomas Homer-Dixon, *Environmental scarcity and violence* (Princeton: Princeton University Press, 1999); Philippe Le Billon, 'The political ecology of war: natural resources and armed conflicts', *Political Geography* 20: 5, 2001, pp. 561–84.

² Jon Barnett and W. Neil Adger, 'Climate change, human security and violent conflict', *Political Geography* 26: 6, 2007, pp. 639–55; Idean Salehyan, 'Climate change and conflict: making sense of disparate findings', *Political Geography* 43: 1, 2014, pp. 1–5.

³ Jay E. Austin and Carl Bruch, eds, *The environmental consequences of war: legal, economic, and scientific perspectives* (Cambridge: Cambridge University Press, 2000).

⁴ Michael L. Ross, 'How do natural resources influence civil war? Evidence from thirteen cases', *International Organization* 58: 4, 2004, pp. 35–67.

⁵ Dawn Brancati, 'Political aftershocks: the impact of earthquakes on intrastate conflict', *Journal of Conflict Resolution* 51: 5, 2007, pp. 715–43.

⁶ Erik Keels and T. David Mason, 'Seeds of peace? Land reform and civil war recurrence following negotiated

potential for cooperation around mutual interests in shared natural resources,⁷ and the links among post-conflict peacebuilding, climate resilience and natural resource management.⁸

The particular emphasis on links between the environment and peace (both positive and negative) was a direct response to the perceived limitations of the former dominant focus on the environment's possible roles in the onset of armed conflict. This distinction resonates with broader attempts in IR to avoid an excessive focus on conflict at the expense of peace research.⁹ Environmental peacebuilding thus provides a more inclusive framework linking various phases of the conflict life-cycle in an integrated manner. Much of this research challenges unidirectional and at times determinist claims about environment–conflict interlinkages,¹⁰ while recognizing that environmental factors can play an important role in both conflict dynamics and peace processes. Furthermore, environmental peacebuilding not only advances academic debates on the environment, peace and conflict, but also draws on and provides insights for decision-makers striving to achieve a more peaceful and sustainable world. The growth and evolution of knowledge on environmental peacebuilding has been based on and driven by practice and policy action as much as it has been advanced by theory and scholarly research.¹¹

This article introduces a special issue of *International Affairs* that advances debates on environmental peacebuilding and provides important insights for both scholars and practitioners. To lay the foundation for the special issue, the remainder of this article discusses core definitions and assumptions of the field, engages with its history and provides an outlook on promising threads for future research. In doing so, it also introduces the articles that make up the special issue.

Definitions and assumptions

Scholars and practitioners continue to use various definitions of environmental peacebuilding; this diversity arises in part from the field's interdisciplinary nature, its broad research area and the diversity of actors involved. Different labels such as environmental peacemaking, ecological diplomacy, science diplomacy and peace ecology further increase this complexity.¹²

For the purpose of this special issue, we employ the following definition: *environmental peacebuilding comprises the multiple approaches and pathways by which the*

⁷ settlements', *Cooperation and Conflict* 54: 1, 2019, pp. 44–63.

⁸ Ken Conca and Geoffrey D. Dabelko, eds, *Environmental peacemaking* (Baltimore: Johns Hopkins University Press, 2002).

⁹ Richard Matthew, Oli Brown and David Jensen, *From conflict to peacebuilding: the role of natural resources and the environment* (Nairobi: UN Environment Programme (UNEP), 2009).

¹⁰ Paul F. Diehl, 'Exploring peace: looking beyond war and negative peace', *International Studies Quarterly* 60: 1, 2016, pp. 1–10.

¹¹ Matt McDonald, 'Climate change and security: towards ecological security?', *International Theory* 10: 2, 2018, pp. 153–80; Harry Verhoeven, 'Gardens of Eden or Hearts of Darkness? The genealogy of discourses on environmental insecurity and climate wars in Africa', *Geopolitics* 19: 4, 2014, pp. 784–805.

¹² Erika Weinthal, 'From environmental peacemaking to environmental peacekeeping', *Environmental Change and Security Project Report* 10: 1, 2004, pp. 19–23.

¹³ For a review, see Tobias Ide, 'The impact of environmental cooperation on peacemaking: definitions, mechanisms and empirical evidence', *International Studies Review* 21: 3, 2019, pp. 327–46.

The past and future(s) of environmental peacebuilding

management of environmental issues is integrated in and can support conflict prevention, mitigation, resolution and recovery. This understanding is more inclusive than many previous definitions, as it covers both the international and domestic arenas, as well as cases in which violent conflict is latent, is active or has happened in the past.¹³ While scholars and practitioners have often analysed violent conflict, environmental peacebuilding also applies to social conflict and politically fragile settings on multiple scales.¹⁴ We conceive of peace as a continuum ranging from the temporary cessation of fighting to the unimaginability of destructive conflict.¹⁵

Environmental peacebuilding works along three dimensions:

- *Security.* The inclusive and sustainable management of natural resources can help avoid conflicts about or linked to these resources. Tensions related to land, water, fish and other resources exist in many world regions and can—under unfavourable conditions—turn violent.¹⁶ Similarly, grievances over the inequitable allocation of benefits from oil, gas and minerals have been catalysts for armed conflicts.¹⁷ Armed groups have a long record of using gemstones, metals and other natural resources to finance their violent campaigns.¹⁸ Furthermore, unsustainable environmental exploitation with little regard for surrounding communities undermines human security and can trigger protests and violent resistance.¹⁹
- *Livelihoods and economy.* Scholars have identified livelihood insecurity and weak economic performance as key predictors of violent conflict and peacebuilding failure.²⁰ These factors increase the grievances of affected populations and provide opportunities for armed groups seeking to recruit marginalized youths or exploit state failure. At the micro level, effective and sustainable management of environmental issues is critical for achieving water security, food security and access to agricultural inputs at the end of any conflict.²¹ An emphasis on governance is vital if environmental infrastructure has been destroyed during violent conflict.²² Disaster risk reduction is also crucial if secure livelihoods are

¹³ Karina Barquet, “Yes to peace”? Environmental peacemaking and transboundary conservation in Central America’, *Geoforum* 63: 1, 2015, pp. 14–24; Anaïs Dresse, Itay Fischhendler, Jonas Østergaard Nielsen and Dimitrios Zikos, ‘Environmental peacebuilding: towards a theoretical framework’, *Cooperation and Conflict* 54: 1, 2019, pp. 99–119.

¹⁴ Saleem H. Ali, ‘The instrumental use of ecology in conflict resolution and security’, *Procedia Social and Behavioral Sciences* 14: 9, 2011, pp. 31–4.

¹⁵ Conca and Dabelko, eds, *Environmental peacemaking*.

¹⁶ Tobias Ide, ‘Why do conflicts over scarce renewable resources turn violent? A qualitative comparative analysis’, *Global Environmental Change* 33: 1, 2015, pp. 61–70.

¹⁷ Päivi Lujala and Siri Aas Rustad, eds, *High-value natural resources and post-conflict peacebuilding* (Abingdon: Routledge, 2012).

¹⁸ Philippe Le Billon, *Fuelling war: natural resources and armed conflict* (Abingdon: Routledge, 2013).

¹⁹ Darin Christensen, ‘Concession stands: how mining investments incite protest in Africa’, *International Organization* 73: 1, 2019, pp. 65–101.

²⁰ Lars-Eric Cederman and Manuel Vogt, ‘Dynamics and logics of civil war’, *Journal of Conflict Resolution* 91: 9, 2017, pp. 1992–2016.

²¹ Carl Bruch, Carroll Muffett and Sandra S. Nichols, ‘Natural resources and post-conflict governance: building a sustainable peace’, in Carl Bruch, Carroll Muffett and Sandra S. Nichols, eds, *Governance, natural resources, and post-conflict peacebuilding* (Abingdon: Routledge, 2016), pp. 1–31.

²² Erika Weinthal and Jeannie Sowers, ‘Targeting infrastructure and livelihoods in the West Bank and Gaza’, *International Affairs* 95: 2, 2019, pp. 319–40.

to be built.²³ At the macro level, water and other natural resources are key to the provision of basic services.²⁴

- *Politics and social relations.* Shared environmental challenges are potential entry points for cooperation between groups, even if their relations are hostile or characterized by mistrust. Environmental challenges offer opportunities for cooperation because they transcend political boundaries, may be less sensitive politically than other topics, and may stimulate actors to consider longer time horizons.²⁵ Once initiated, environmental cooperation can lead to institutions conducive to further integration and conflict resolution.²⁶ Such adaptive and flexible institutions are critical for building resilience and responding to global challenges such as climate change.²⁷ In addition, positive-sum cooperation on environmental challenges can be instrumental in building trust and understanding between social groups and political leaders.²⁸ This dynamic is often referred to as environmental peacemaking.²⁹

Environmental peacebuilding faces challenges on all three of these dimensions, and peace-enhancing effects are far from guaranteed. Indeed, success and failure can often be hard to define.³⁰ Positive outcomes are especially difficult to achieve if the approaches do not address underlying political tensions, create new exclusions or serve as smokescreens for other interests.³¹

The past of environmental peacebuilding

Environmental peacebuilding as a distinct research field emerged at the beginning of the twenty-first century, partly as a reaction to the narrow focus and contested findings of the scarcity- and conflict-centred environmental security literature published in the 1990s.³² In 2002, Matthew, Halle and Switzer systematized the ways in which environmental degradation can contribute to conflict

²³ Elly Harowell and Alpaslan Özerdem, ‘Understanding the dilemmas of integrating post-disaster and post-conflict reconstruction initiatives: evidence from Nepal, Sri Lanka and Indonesia’, *International Journal of Disaster Risk Reduction* 36: 5, 2019, pp. 1–11.

²⁴ Erika Weintal, Jessica Troell and Mikiyasu Nakayama, eds, *Water and post-conflict peacebuilding* (Abingdon: Routledge, 2014).

²⁵ Ken Conca, ‘Environmental cooperation and international peace’, in Paul F. Diehl and Nils Petter Gleditsch, eds, *Environmental conflict* (Boulder, CO: Westview, 2001), pp. 225–47.

²⁶ Matthew Wilburn King, Marco Antonio González Pastora, Mauricio Castro Salazar and Carlos Manuel Rodríguez, ‘Environmental governance and peacebuilding in post-conflict Central America: lessons from the Central American Commission for Environment and Development’, in Bruch et al., eds, *Governance, natural resources, and post-conflict peacebuilding*, pp. 777–802.

²⁷ Jon Barnett, ‘The dilemmas of normalising losses from climate change: towards hope for Pacific atoll countries’, *Asia Pacific Viewpoint* 58: 1, 2017, pp. 3–13.

²⁸ Ide, ‘The impact of environmental cooperation on peacemaking’; Raul Lejano, ‘Theorizing peace parks: two models of collective action’, *Journal of Peace Research* 43: 5, 2006, pp. 563–81.

²⁹ Conca and Dabelko, eds, *Environmental peacemaking*.

³⁰ Suppiramamian Nanthikesan and Juha Uitto, ‘Evaluating post-conflict assistance’, in David Jensen and Steven Lonergan, eds, *Assessing and restoring natural resources in post-conflict peacebuilding* (Abingdon: Routledge, 2012), pp. 389–408.

³¹ Tobias Ide, ‘The dark side of environmental peacebuilding’, *World Development* 127: 1, 2020, pp. 1–9; McKenzie F. Johnson, ‘Strong (green) institutions in weak states: environmental governance and human (in)security in the global South’, *World Development* 122: 1, 2019, pp. 433–45.

³² Homer-Dixon, *Environmental scarcity and violence*.

and outlined strategies for environment-related conflict prevention.³³ At the same time, the volume edited by Conca and Dabelko advanced the idea that shared environmental problems might serve as entry points for cooperation and eventually peacemaking.³⁴ The concept of disaster diplomacy was also introduced in the early 2000s to analyse whether disasters provide starting points for dialogue and cooperation between hostile states.³⁵ Despite thematic overlaps, research on disaster diplomacy developed separately from environmental peacebuilding.

Several features are characteristic of this first generation of environmental peacebuilding research. Thematically, it focused mainly on transboundary water and conservation issues. A seminal contribution on the latter theme was the volume edited by Ali on conservation areas as tools for conflict resolution and trust-building—so-called ‘peace parks’.³⁶ At that time, environmental peacebuilding research focused primarily on the international level (conflict and cooperation between states), using case-studies and conceptual work as the main methods. Practitioners played an important role in delivering empirical insights and driving policy initiatives, for instance by the EU, the Organization for Security and Co-operation in Europe (OSCE), the United Nations Environment Programme (UNEP), national government agencies and NGOs.³⁷ Although critical approaches are more common in later work, there are some early examples. Duffy and Swatuk, for instance, argued that peace parks are used as instruments for extending state control rather than for building peace or protecting the environment.³⁸

A second generation of environmental peacebuilding research started to take shape around 2009, with a particular focus on post-conflict settings. This work emerged partly in response to the creation in 2005 of the UN Peacebuilding Commission,³⁹ and to a concomitant increasing openness on the part of UN bodies and member states to considering the roles that the environment and natural resources might play in post-conflict settings.⁴⁰ The 2007 UN Security Council debate on climate change and security was another indicator of these developments. In the subsequent decade, the amount of literature on environmental peacebuilding multiplied, making the field more diverse, multifaceted and reflective.

One notable trend during this period was a turn towards the intrastate level of analysis. This aligned with a broader shift of focus onto intrastate armed conflict

³³ Richard Matthew, Mark Halle and Jason Switzer, eds, *Conserving the peace: resources, livelihood and security* (Winnipeg: International Institute for Sustainable Development, 2002).

³⁴ Conca and Dabelko, eds, *Environmental peacemaking*.

³⁵ Ilan Kelman and Theo Koukis, ‘Introduction: special section on disaster diplomacy’, *Cambridge Review of International Affairs* 14: 1, 2000, pp. 214–94.

³⁶ Saleem H. Ali, ed., *Peace parks: conservation and conflict resolution* (Cambridge, MA: MIT Press, 2007).

³⁷ Alexander Carius, *Environmental peacemaking. Environmental cooperation as an instrument of crisis prevention and peacebuilding: conditions for success and constraints* (Berlin: Adelphi, 2006); Nicole Harari and Jesse Roseman, *Environmental peacebuilding, theory and practice: a case study of the Good Water Neighbours project and in depth analysis of the Wadi Fukin/Tzur Hadassah communities* (Amman, Bethlehem and Tel Aviv: Friends of the Earth Middle East, 2008); Annika Kramer, *Cross-border water cooperation and peacebuilding in the Middle East* (London: Accord, 2011).

³⁸ Rosaleen Duffy, ‘Peace parks: the paradox of globalisation?’, *Geopolitics* 6: 2, 2002, pp. 1–26; Larry A. Swatuk, ‘Peace parks in southern Africa’, *Environmental Change and Security Program Report* 11: 1, 2005, pp. 65–7.

³⁹ Matti Lehtonen, ‘Peacebuilding through natural resource management: the UN Peacebuilding Commission’s first five years’, in Bruch et al., eds, *Governance, natural resources, and post-conflict peacebuilding*, pp. 147–64.

⁴⁰ Matthew et al., *From conflict to peacebuilding*.

and post-civil war peacebuilding in IR and peace and conflict studies.⁴¹ Several studies highlighted the potential and pitfalls of environmental peacebuilding in post-conflict situations.⁴² In this context, the term ‘environmental peacebuilding’ gained currency in relation to related labels such as ‘environmental peacemaking’. As the field developed, UNEP facilitated numerous and diverse interactions between practitioners and researchers.⁴³

Methodological advances responded to the criticism that the field was too deductive and theory-driven, and that theorized claims were backed by insufficient empirical evidence.⁴⁴ Several studies skilfully combined field-based methods such as ethnography, participant observation and expert interviews to produce nuanced insights.⁴⁵ Large-N quantitative studies showed that environmental cooperation, especially at the international level, tends to reduce conflict risks and facilitates peaceful relations.⁴⁶ Critical voices also gained further ground in the debate. Several scholars argued that in practice, environmental peacebuilding often favours technocratic approaches that ignore—and hence depoliticize—unequal power relations.⁴⁷ Others found that environmental peacebuilding can serve narrow state or business interests and has little substantial impact on peace.⁴⁸ In the overlapping field of water politics, the concept of hydro-hegemony emerged to explore the power dynamics and interests that may be driving seemingly cooperative ventures.⁴⁹

The proliferation of literature also led to the emergence of a broad range of new topics in environmental peacebuilding research, including climate change, education, energy, legal dimensions and resilience.⁵⁰ Three recent review articles

⁴¹ Christopher Blattman and Edward Miguel, ‘Civil war’, *Journal of Economic Literature* 48: 1, 2010, pp. 3–57; Charles T. Call and Elizabeth M. Cousens, ‘Ending wars and building peace: international responses to war-torn societies’, *International Studies Perspectives* 9: 1, 2008, pp. 1–21.

⁴² Ken Conca and Jennifer Wallace, ‘Environment and peacebuilding in war-torn societies: lessons from the UN Environment Programme’s experience with post-conflict assessment’, *Global Governance* 15: 4, 2009, pp. 485–504; Matthew et al., *From conflict to peacebuilding*.

⁴³ See e.g. Helen Young and Lisa Goldman, eds, *Livelihoods, natural resources, and post-conflict peacebuilding* (Abingdon: Routledge, 2015).

⁴⁴ Conca and Wallace, ‘Environment and peacebuilding in war-torn societies’.

⁴⁵ Johnson, ‘Strong (green) institutions in weak states’; Adrian Martin, Eugene Rutagarama, Ana Elisa Cascão, Maryke Gray and Vasudha Chhotray, ‘Understanding the co-existence of conflict and cooperation: trans-boundary ecosystem management in the Virunga Massif’, *Journal of Peace Research* 48: 5, 2011, pp. 621–35.

⁴⁶ Karina Barquet, Päivi Lujala and Jan Ketil Rod, ‘Transboundary conservation and militarized interstate disputes’, *Political Geography* 42: 1, 2014, pp. 1–11; Tobias Ide and Adrien Detges, ‘International water cooperation and environmental peacemaking’, *Global Environmental Politics* 18: 4, 2018, pp. 63–84.

⁴⁷ Karin Aggestam and Anna Sundell, ‘Depoliticizing water conflict: functional peacebuilding in the Red Sea–Dead Sea Water Conveyance project’, *Hydrological Science Journal* 61: 7, 2016, pp. 1302–12; Florian Krampe, ‘Water for peace? Post-conflict water resource management in Kosovo’, *Cooperation and Conflict* 52: 2, 2016, pp. 147–65; Mark Zeitoun, Naho Mirumachi and Jeroen Warner, ‘Transboundary water interaction II: the influence of “soft” power’, *International Environmental Agreements* 11: 2, 2011, pp. 159–78.

⁴⁸ Emel Akçalı and Marco Antonisch, ‘“Nature knows no boundaries”: a critical reading of UNDP environmental peacemaking in Cyprus’, *Annals of the Association of American Geographers* 99: 5, 2009, pp. 940–47; Barquet, ‘“Yes to peace”?.

⁴⁹ Marc Zeitoun and Jeroen Warner, ‘Hydro-hegemony: a framework for analysis of trans-boundary water conflicts’, *Water Policy* 8: 5, 2006, pp. 435–60.

⁵⁰ Jon Barnett, ‘Global environmental change I: climate resilient peace?’, *Progress in Human Geography* 43: 5, 2019, pp. 927–36; Carl Bruch, Erika Weinthal and Jessica Troell, ‘Water law and governance in post-conflict settings’, *Review of European, Comparative and International Environmental Law* 29: 1, 2020, pp. 7–20; Mirza Sadaqat Huda and Saleem H. Ali, ‘Environmental peacebuilding in South Asia: establishing consensus on hydroelectric projects in the Ganges–Brahmaputra–Meghna (GBM) basin’, *Geoforum* 96: 1, 2018, pp. 160–71;

that provide overviews of this burgeoning body of work find moderate evidence that environmental cooperation can contribute to peace, but also show the persistence of significant theoretical and empirical gaps.⁵¹

The expanding literature and the increasingly broad range of topics covered indicate that environmental peacebuilding speaks to and draws on insights from a growing number of research fields. This expansion is at work not only in environment–conflict and climate–conflict studies, but also in peacebuilding research,⁵² the literature on governing the commons,⁵³ political ecology⁵⁴ and critical security studies.⁵⁵ This integration comes with challenges, however. Engaging in sustained debates with scholars and practitioners from multiple backgrounds using different terminologies and conceptual frameworks is often difficult, especially in an academic world where careers are still strongly shaped by disciplinary benchmarks, and practitioners can easily become stuck in sectoral or bureaucratic compartments.

Recent developments suggest that an emergent third generation of environmental peacebuilding research is poised to increase the field’s role as an integrative platform. We see this as a watershed moment, for two reasons. First, environmental peacebuilding is still a rapidly growing field. As an example of that increasing interest, 250 scholars and practitioners from over 40 countries attended the first international conference of the new Environmental Peacebuilding Association (EnPAx) in Irvine, California, in October 2019. The research frontiers remain open to a wide range of new work. The articles in this special issue are outstanding examples of such research.

Second, scholars are increasingly committed to engaging with practical concerns as well as with interdisciplinary conversations relevant to the topic. Work on natural resource management in post-conflict settings, for instance, is inspired by insights and demand from practitioners, and draws on insights from political science, geography, economics and law, among other fields.⁵⁶

The future(s) of environmental peacebuilding

The third generation of environmental peacebuilding engages with a multiplicity of topics, methods and debates that have emerged during the past two decades.

⁵¹ Tobias Ide and Amit Tubi, ‘Education and environmental peacebuilding: insights from three projects in Israel and Palestine’, *Annals of the Association of American Geographers* 110: 1, 2020, pp. 1–17; Richard Matthew, ‘Integrating climate change into peacebuilding’, *Climatic Change* 123: 1, 2014, pp. 83–93.

⁵² Dresse et al., ‘Environmental peacebuilding’; Ide, ‘The impact of environmental cooperation on peacemaking’; McKenzie F. Johnson, Luz A. Rodríguez and Manuela Quijano Hoyos, ‘Intrastate environmental peacebuilding: a review of the literature’, *World Development* 137: 1, 2020, pp. 1–18.

⁵³ Florian Krampe, ‘Towards sustainable peace: a new research agenda for post-conflict natural resource management’, *Global Environmental Politics* 17: 4, 2017, pp. 1–8.

⁵⁴ Blake D. Ratner, Ruth Meinzen-Dick, Candace May and Eric Haglund, ‘Resource conflict, collective action, and resilience: an analytical framework’, *International Journal of the Commons* 7: 1, 2013, pp. 183–208.

⁵⁵ Maano Ramutsindela, ‘Greening Africa’s borderlands: the symbiotic politics of land and borders in peace parks’, *Political Geography* 56: 1, 2017, pp. 106–13.

⁵⁶ Lucile Maertens, ‘From blue to green? Environmentalization and securitization in UN peacekeeping practices’, *International Peacekeeping* 19: 3, 2019, pp. 302–26.

⁵⁷ Johnson et al., ‘Intrastate environmental peacebuilding’; Matthew et al., *From conflict to peacebuilding*.

In the following sections of this introduction, we consider five key topics and considerations that should be central to this third generation of research.

Bottom-up approaches

Research across the environmental peacebuilding spectrum has hitherto focused significantly on top-down leadership by international organizations, high-level state institutions and (inter-)national NGOs. Examples include the NGO Tearfund's efforts to resolve conflicts over water (*security dimension*),⁵⁷ UNEP's attempts to improve the environmental situation in post-conflict societies (*livelihoods and economy dimension*),⁵⁸ and state elites' initiatives (in cooperation with international supporters) to establish peace parks (*political and social dimension*).⁵⁹

Local communities are frequently successful in managing natural resources and mitigating or managing environmental conflicts.⁶⁰ Increasingly, bottom-up approaches have also empowered marginalized and vulnerable communities who lack seats at decision-making tables and suffer from the 'slow violence' of rampant destruction of their livelihoods and ecosystems.⁶¹

If such bottom-up environmental peacebuilding efforts fail—whether owing to local circumstances, misguided or manipulative external involvement, or political interference—the potential consequences often include resource exploitation, livelihood insecurity and communal conflict. Non-state conflict has been the most prevalent form of political violence for decades.⁶² Researchers are paying increasing attention to bottom-up, local-level environmental peacebuilding practices, especially in relation to issues of concern for basic human security and livelihoods.⁶³

In this special issue, the contribution of Ide, Palmer and Barnett introduces *tara bandu* in post-civil war Timor-Leste as a bottom-up environmental peacebuilding approach.⁶⁴ Local communities use this ritual practice to manage natural resources, social conflicts and spiritual relations at the same time. Top-down interventions by the state and international actors, while also providing increased material and

⁵⁷ Murray Burt and Bilha Joy Keiru, 'Strengthening post-conflict peacebuilding through community water-resource management: case studies from Democratic Republic of Congo, Afghanistan and Liberia', *Water International* 36: 2, 2011, pp. 232–41.

⁵⁸ Conca and Wallace, 'Environment and peacebuilding in war-torn societies'.

⁵⁹ Todd J. Walters, 'A peace park in the Balkans: crossborder cooperation and livelihood creation through coordinated environmental conservation', in Young and Goldman, eds, *Livelihoods, natural resources, and post-conflict peacebuilding*, pp. 155–66.

⁶⁰ Elinor Ostrom, *Governing the commons: the evolution of institutions for collective action* (Cambridge: Cambridge University Press, 1990); Taha Taher, Bryan Bruns, Omar Bamaga, Adel Al-Weshali and Frank Van Steenbergen, 'Local groundwater governance in Yemen: building on traditions and enabling communities to craft new rules', *Hydrogeology Journal* 20: 6, 2012, pp. 1177–88.

⁶¹ Rob Nixon, *Slow violence and the environmentalism of the poor* (Cambridge, MA: Harvard University Press, 2011).

⁶² Therèse Pettersson and Magnus Öberg, 'Organized violence, 1989–2019', *Journal of Peace Research* 57: 4, 2020, pp. 597–613.

⁶³ Janani Vivekanada, Martin Wall, Florence Sylvestre and Chitra Nagarajan, *Shoring up stability: addressing the climate and fragility risks in the Lake Chad region* (Berlin: adelphi, 2019).

⁶⁴ Tobias Ide, Lisa R. Palmer and Jon Barnett, 'Environmental peacebuilding from below: customary approaches in Timor-Leste', *International Affairs* 97: 1, Jan. 2021, pp. 103–117.

ideational support, risk undermining the effectiveness of *tara bandu*. This case illustrates the gains offered by studying bottom-up environmental peacebuilding in the context of debates around liberal, local and hybrid peacebuilding.

Similarly, Johnson analyses how informal institutions at the local level contribute to peacebuilding in northern Sierra Leone.⁶⁵ Using tantalite extraction as an example, she shows how bottom-up approaches and their hybrid interactions with formal state institutions allow locals to defend their claims to mineral rights and manage the associated conflicts. This experience serves as an important counterpoint to widespread assumptions in the international community that informal and hybrid institutions are a threat to peace and need to be replaced by formal regulations.

Huda's contribution investigates grassroots environmental peacebuilding initiatives between India and Bangladesh and between India and Pakistan.⁶⁶ These dyads are a particularly challenging context, given the persistent geopolitical conflicts and nationalist projects in the region. Huda demonstrates, however, that youth engagement and tertiary education projects on environmental issues can have a transformative effect on nativist identities. These projects address ideational drivers of conflict in a bottom-up manner and pave the way for future peacebuilding processes.

Gender

Gender is another area that has received insufficient attention in environmental peacebuilding research and practice. Since the UN Security Council adopted Resolution 1325 on Women, Peace and Security in 2000, substantially more attention has been focused on women's participation in peace talks and peace agreements. A large body of literature has documented the gendered character of human–environment relationships, including some linked to post-conflict settings.⁶⁷ Insights from this work have stressed a range of themes. These include, among others, women's vulnerabilities around access to and control of basic livelihood resources as well as the capabilities that may derive from women's knowledge and 'gatekeeper' status in relation to resource provisioning.⁶⁸ A large body of literature documents the dynamics between gender and conflict. Women and men may take on new roles when conflict disrupts the institutionalized division of labour—for example, in the context of gendered patterns of migration.⁶⁹ At

⁶⁵ McKenzie F. Johnson, 'Fighting for black stone: extractive conflict, institutional change and peacebuilding in Sierra Leone', *International Affairs* 97: 1, Jan. 2021, pp. 81–101.

⁶⁶ Mirza Sadaqat Huda, 'An ecological response to ethno-nationalistic populism: grassroots environmental peacebuilding in south Asia', *International Affairs* 97: 1, Jan. 2021, pp. 119–38.

⁶⁷ Susan Buckingham-Hatfield, *Gender and environment* (Abingdon: Routledge, 2000); Njeri Karuru and Louise H. Yeung, 'Integrating gender into post-conflict natural resource management', in Bruch et al., eds, *Governance, natural resources and post-conflict peacebuilding*, pp. 579–604.

⁶⁸ Barbara Van Koppen, 'Gender and water', in Ken Conca and Erica Weinthal, eds, *The Oxford handbook of water politics and policy* (New York: Oxford University Press, 2018), pp. 76–99.

⁶⁹ Isabelle Côté and Limingcui Emma Huang, 'Where are the daughters? Examining the effects of gendered migration on the dynamics of "sons of the soil" conflict', *Studies in Conflict and Terrorism* 43: 10, 2020, pp. 837–53.

the same time, attention is increasingly being devoted to women as agents, not just victims, including in their roles in peacebuilding processes.⁷⁰

However, as Fröhlich and Gioli have noted, recognition of the gendered character of both environmental interactions and peace-and-conflict processes ‘has yet to be translated into a comprehensive research framework that integrates gender as an analytical category into environmental and conflict research’.⁷¹ Significant challenges to research in this area include the danger of conflating short-term effects with lasting change, tensions between legal reform and actually implemented change, overemphasis on the state in contexts marked by hybridized authority, and the formalized but marginalized character of gender in many peacebuilding processes. Much the same can be said of environmental peacebuilding research.

Dunn and Matthew identify several reasons why use of a gendered lens may offer valuable insights:

women are often in frequent, immediate, and unique contact with the natural environment; propelled toward violence when traditional gender roles must be carried out in conflict areas; tied to large-scale resource development in gendered ways; and obligated to develop coping strategies in new, often high-risk environments.⁷²

They stress in particular the role that gendered forms of knowledge and social networks may play in creating new avenues for dialogue, trust-building and cooperation. At the institutional level, UNEP, in cooperation with other actors, has begun to incorporate a gender lens in its work at the intersection of environment and peacebuilding, as evident in the adoption by its Environment Assembly of a resolution on the topic.⁷³

The contribution of Yoshida and Céspedes-Báez to this special issue speaks directly to these debates about gender and environmental peacebuilding.⁷⁴ On the basis of their research in Colombia, the authors argue for a stronger integration of the Women, Peace and Security agenda with the environmental peacebuilding approach. They make a case for the replacement of the currently dominant law-based, individualistic approach by a broader perspective highlighting the intersections between individuals, communities and ecosystems. Rather than focusing solely on women’s vulnerability, such an approach also recognizes women’s contributions to sustainability, development and peace.

⁷⁰ Deborah Eade and Haleh Afshar, *Development, women and war: feminist perspectives* (Oxford: Oxfam, 2003); Theodora-Ismine Gizelis, ‘A country of their own: women and peacebuilding’, *Conflict Management and Peace Science* 28: 5, 2011, pp. 522–42.

⁷¹ Christiane Fröhlich and Giovanna Gioli, ‘Gender, conflict, and global environmental change’, *Peace Review* 27: 2, 2015, pp. 137–46 at p. 137.

⁷² Holly Dunn and Richard Matthew, ‘Natural resources and gender in conflict settings’, *Peace Review* 27: 2, 2015, pp. 156–64.

⁷³ UNEP, Resolution 2/15: protection of the environment in areas affected by armed conflict, 3 Aug. 2016, <https://wedocs.unep.org/handle/20.500.11822/11189?show=full>; UNEP, UN Development Programme, UN Women and Peacebuilding Support Office, *Women and natural resources: unlocking the peacebuilding potential* (New York: UN, 2013). (Unless otherwise noted at point of citation, all URLs cited in this article were accessible on 12 Oct. 2020.)

⁷⁴ Keina Yoshida and Lina Céspedes-Báez, ‘The nature of Women, Peace and Security: a Colombian perspective’, *International Affairs* 97: 1, Jan. 2021, pp. 17–34.

Conflict-sensitive programming

Environmental peacebuilding also addresses the importance of giving adequate attention to conflict in effective environmental and natural resource programming; that is, of conflict-sensitive programming.⁷⁵ Land, forests, water and other natural resources are critical for diverse reasons to multiple constituencies. Yet environmental and development organizations have historically often designed and implemented environmental projects in the same ways in both conflict-affected contexts and those not affected by conflict. While some notable early efforts were made to avoid this mistake, the failure to account for the conflict context can inadvertently generate or renew conflicts. While peacebuilding works ‘on’ conflict, conflict-sensitive programming works ‘in’ conflict.⁷⁶

The peer-reviewed literature on conflict-sensitive conservation tends to study specific cases.⁷⁷ A much larger body of grey literature⁷⁸ and institutional policies on conflict-sensitive conservation emphasizes three broad approaches: avoiding aggravating tensions and otherwise trying to avoid harm; reducing the impacts of conflict on conservation efforts; and resolving conservation-related conflicts.⁷⁹

Research on conflict-sensitive programming is crucial for two key reasons. First, further enquiry is necessary to gain a better understanding of the ways in which even well-meaning actions (such as establishing a national park, planting trees or drilling water wells) can generate conflict that rapidly escalates into violence. Second, just as it is essential for peacebuilders to understand and incorporate environmental considerations in working to achieve their objectives, it is also essential for conservation and development actors to understand and incorporate conflict considerations to achieve their own objectives. There is a high level of policy demand for conflict-sensitive adaptation to climate change in fragile contexts.⁸⁰

In their contribution to this special issue, Vélez-Torres and Lugo-Vivas analyse rural reforms in Colombia after the 2016 peace agreement between the government and the Revolutionary Armed Forces of Colombia—People’s Army

⁷⁵ Amanda Woomer, *Conflict sensitivity and conservation: evaluating design, implementation, and practice*, PhD diss., Kennesaw State University, 2018.

⁷⁶ Peter Woodrow and Diana Chigas, *A distinction with a difference: conflict sensitivity and peacebuilding* (Cambridge, MA: CDA, 2009).

⁷⁷ Joshua Fisher, Hannah Stutzman, Mariana Vedoveto, Debora Delgado, Ramon Rivero, Walter Quertehuari Dariquebe, Luis Seclén Contreras, Tamia Souto, Alexandra Harden and Sophia Rhee, ‘Collaborative governance and conflict management: lessons learned and good practices from a case study in the Amazon basin’, *Society and Natural Resources* 33: 4, 2020, pp. 538–53; Johannes Refisch and Johann Jenson, ‘Transboundary collaboration in the Greater Virunga landscape: from gorilla conservation to conflict-sensitive transboundary landscape management’, in Bruch et al., eds, *Governance, natural resources, and post-conflict peacebuilding*, pp. 825–41.

⁷⁸ Grey literature here refers to publications that appear outside the traditional academic publishing systems and are not peer-reviewed, such as working papers or reports.

⁷⁹ Anne Hammill, Alec Crawford, Robert Craig, Robert Malpas and Richard Matthew, *Conflict-sensitive conservation: practitioners’ manual* (London: International Institute for Sustainable Development, 2009); Elizabeth A. Law, Nathan J. Bennett, Christopher D. Ives, Rachel Friedman, Katrina J. Davis, Carla Archibald and Kerrie A. Wilson, ‘Equity trade-offs in conservation decision making’, *Conservation* 32: 2, 2017, pp. 294–303.

⁸⁰ Dennis Tänzler, Achim Maas and Alexander Carius, ‘Climate change adaptation and peace’, *Wiley Interdisciplinary Reviews: Climate Change* 1: 5, 2010, pp. 741–50; Dennis Tänzler and Nikolas Scherer, *Guidelines for conflict-sensitive adaptation to climate change* (Dessau-Roßlau: Umweltbundesamt, 2019).

(FARC).⁸¹ They identify various missed opportunities for conflict-sensitive policy change and environmental peacebuilding. A poorly designed coca replacement programme, the prioritization of large business interests over small-scale farming and the absence of inclusive land reforms undermine the livelihoods of rural peasants and pave the way for corporate resource-grabbing. Accordingly, the structural inequalities and sense of marginalization that have fuelled previous violent conflicts persist.

Osseyni Kalilou also focuses on agricultural changes and peacebuilding. In an article based on field observations and expert interviews in Niger, he illustrates how the cultivation of gum arabic trees in the Sahel region facilitates climate change mitigation and peacebuilding.⁸² Tree-planting initiatives can improve local infrastructure, livelihoods and community cooperation, which in turn inhibit involuntary migration, local resource conflicts and recruitment by armed groups. To be designed in a conflict-sensitive way, however, projects must include local actors, so as to prevent having little impact on the ground or even exacerbating local tensions.

Use of big data and frontier technology

In the 2000s, academic and practitioner interest emerged in existing and potential roles for big data and frontier technologies (e.g., GIS, artificial intelligence, blockchain) across all three dimensions of environmental peacebuilding.⁸³ Considerable attention has been focused on the potential for developing more robust early warning systems as the rapid fusion of data becomes easier to achieve, more reliable models are developed to reduce uncertainty and larger numbers of people have reliable access to digital technologies.⁸⁴ Before and during conflict, portable technologies such as smartphones are already widely in use for a range of purposes, from describing the conditions of people at risk to monitoring forced displacements and informal settlements.⁸⁵

As actors forge peace agreements and establish peacekeeping operations, big data and frontier technologies can increasingly support monitoring activities.⁸⁶ Finally, as peacebuilding operations are put in place to support building state and civil society capacity, these technologies can help in formulating data-driven decisions and policies.⁸⁷ Big data and frontier technologies allow information

⁸¹ Irene Vélez-Torres and Diego Lugo-Vivas, ‘Slow violence and corporate greening in the war on drugs in Colombia’, *International Affairs* 97: 1, Jan. 2021, pp. 57–79.

⁸² Osseyni Kalilou, ‘Climate change and conflict in the Sahel: the acacia gum tree as a tool for environmental peacebuilding’, *International Affairs* 97: 1, Jan. 2021, pp. 201–18.

⁸³ Sanjana Hattotuwa, ‘Big data and peacebuilding’, *Stability* 2: 3, 2013, pp. 1–3; Helena Puig Larrauri and Anne Kahl, ‘Technology for peacebuilding’, *Stability* 2: 3, 2013, p. 1–15.

⁸⁴ Birger Heldt, ‘Mass atrocities early warning systems: data gathering, data verification and other challenges’, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2028534.

⁸⁵ William Tsuma, Anne Kahl and Christy McConnell, ‘Crowdsourcing as a tool in conflict prevention’, *Conflict Trends* 1: 1, 2012, pp. 27–34.

⁸⁶ John Karlstrud, ‘Peacekeeping 4.0: harnessing the potential of big data, social media, and cyber technologies’, in Jan-Frederik Kremer and Benedikt Müller, eds, *Cyberspace and International Relations: theory, prospects and challenges* (Dordrecht: Springer, 2014), pp. 141–60.

⁸⁷ Alex Cominios, *The role of social media and user-generated content in post-conflict peacebuilding* (Washington DC: World Bank, 2013).

The past and future(s) of environmental peacebuilding

to be collected, shared and analysed quickly; can be broadly inclusive and easily accessible; can support decision-making in real time; and can help build datasets for future analysis. A related theme is the emerging role of crowdsourcing and ‘citizen science’ as tools for monitoring compliance.

Looking forward, we can imagine big data and frontier technologies playing an important role in integrating local knowledge and needs into larger datasets, facilitating transparency across different scales (local, national, regional, etc.), supporting collective action, and ultimately helping communities to recover effectively from environmental stress and violent conflict.⁸⁸ The associated methodological pluralism can also help scholars to check the validity of data on the ground and measure impacts of different interventions, for instance by combining drone observation or remote sensing with ethnographic research.

The use of big data in environmental peacebuilding, however, does face hurdles, requiring urgent attention to both governance and technical challenges. In particular, powerful information and communication technologies can be highly intrusive. Data availability and quality vary widely around the world and reliance on imperfect data can generate a false sense of understanding. Furthermore, systems designed to be inclusive and transparent can also be used to quickly disseminate information that is false or manipulated.⁸⁹ Also, the use of such approaches, as indeed of any form of intrusive, large-scale data collection and analysis, carries the risk of creating or exacerbating conflict.

Looking at a current conflict in the Middle East, Sowers and Weinthal underscore the high potential of collecting large amounts of data from various sources.⁹⁰ They present and analyse a new dataset recording violence against agricultural, energy, health, transportation and water infrastructure during the civil war in Yemen. The authors document an intense targeting of such civilian infrastructure, in particular since 2017, with considerable negative implications for the environment and human security. This kind of destruction will pose significant challenges to community-based resource management and post-conflict (environmental) peacebuilding.

Monitoring and evaluation

Monitoring and evaluation (M&E) helps us to understand when interventions achieve their objectives, when they do not, and why. Attribution in environmental peacebuilding (and conflict interventions more broadly) has always posed a vexing challenge of matching interventions with outcomes. Developing more sophisticated, consistent and widespread M&E tools will provide accountability

⁸⁸ Wim Zwijnenburg, *Online identification of conflict related environmental damage* (Amsterdam: Bellingcat, 17 Dec. 2015), <https://www.bellingcat.com/resources/how-tos/2015/12/17/online-identification-of-conflict-related-environmental-damage-a-beginners-guide/>.

⁸⁹ Daniel Stauffacher, William Drake, Paul Currión and Julia Steinberge, *Information and communication technology for peace: the role of ICT in preventing, responding to and recovering from conflict* (New York: UN Information and Communication Technologies Taskforce, 2005).

⁹⁰ Jeannie Sowers and Erika Weinthal, ‘Humanitarian challenges and the targeting of civilian infrastructure in the Yemen war’, *International Affairs* 97: 1, Jan. 2021, pp. 157–77.

and learning for beneficiaries, implementers and funders alike. While there is substantial peer-reviewed literature on M&E for peacebuilding and environmental protection,⁹¹ the literature on M&E for environmental peacebuilding is limited. What does exist tends to analyse post-conflict interventions involving natural resources and multinational collaboration on natural resources management.⁹² Quantitative studies may demonstrate broad associations but are unable to assess specific policy interventions.⁹³

M&E for environmental peacebuilding is complicated by five key challenges: (1) the length of time that has to elapse before the impacts of intervention projects become evident; (2) the multiplicity of actors, which complicates data collection and attribution; (3) the dynamic and often insecure context, characterized by political contention and violence; (4) the lack of treatment and control cases; and (5) the complications that arise from combining the different objectives and metrics used for, respectively, environmental and peacebuilding interventions. The substantial body of learned experience from practitioners can help navigate many of these challenges, but the peer-reviewed literature has yet to capture those experiences systematically.

The existing literature on M&E highlights some noteworthy trends. First, the M&E community has recently begun shifting towards evaluations of contributions (analysing how an intervention contributed to a certain outcome together with many other factors) rather than attribution (attributing an outcome solely to a certain intervention). Second, implementers and funders are increasingly focusing on theories of change, rather than on merely quantitative metrics.⁹⁴ At the same time, scholars and practitioners are expressing a growing interest in how big data, geospatial data and frontier technologies can support quantitative approaches to M&E.⁹⁵ Fourth, M&E efforts are also shifting towards the use of an adaptive management framework in evaluation, recognizing the complexity and dynamism of environmental peacebuilding.⁹⁶

In this special issue, Ankenbrand, Welter and Engwicht illustrate the potential pitfalls of environmental peacebuilding projects.⁹⁷ Studying artisanal and small-scale mining formalization as a peacebuilding tool in Liberia and Sierra Leone, the

⁹¹ Ken Menkhaus, *Impact assessment in post-conflict peacebuilding: challenges and future directions* (Geneva: Interpeace, 2004); Tamra Pearson d'Estrée, ed., *New directions in peacebuilding evaluation* (Lanham, MD: Rowman & Littlefield, 2019); Alexander Conley and Margarete Moote, 'Evaluating collaborative natural resource management', *Society and Natural Resources* 16: 1, 2010, pp. 371–86; Juha Uitto, 'Sustainable development evaluation: understanding the nexus of natural and human systems', *New Directions for Evaluation* 162: 1, 2019, pp. 49–67.

⁹² Nanthikesan and Uitto, 'Evaluating post-conflict assistance'; Juha Uitto, 'Multi-country cooperation around shared waters: role of monitoring and evaluation', *Global Environmental Change* 14: 1, 2004, pp. 5–14.

⁹³ Ide and Detges, 'International water cooperation and environmental peacemaking'; Keels and Mason, 'Seeds of peace?'.

⁹⁴ Michael Quinn Patton, *Blue marble evaluation: premises and principles* (New York: Guilford, 2020); Pearson d'Estrée, ed., *New directions in peacebuilding evaluation*.

⁹⁵ Steven Hojlund, Karol Olejniczak, Gustav Jakob Petersson and Jakub Rok, 'The current use of big data in evaluation', in Gustav Jakob Petersson and Jonathan D. Breul, eds, *Cyber society, big data, and evaluation: comparative policy evaluation* (Abingdon: Routledge, 2017), pp. 35–60.

⁹⁶ Woodrow and Chigas, *A distinction with a difference*.

⁹⁷ Christina Ankenbrand, Zabrina Welter and Nina Engwicht, 'Formalization as a tool for environmental peacebuilding? Artisanal and small-scale mining in Liberia and Sierra Leone', *International Affairs* 97: 1, Jan. 2021, pp. 35–55.

authors recognize a significant shift from a narrow focus on security and governance to a broad approach designed to strengthen local livelihoods. However, their research demonstrates that the positive impacts of mining formalization on livelihoods are often small to negligible. Identifying whether such processes entail business as usual or environmental peacebuilding is an important, yet complicated, task for M&E efforts.

Morales-Muñoz, Löhr, Bonatti, Eufemia and Sieber assess mechanisms through which natural resource management projects can contribute to peacebuilding.⁹⁸ By doing so, they provide important insights into key factors not only in M&E efforts, but also in the causal chains connecting environmental cooperation and peacebuilding more widely. In an analysis based on multimethod research on sustainable land-use systems in post-civil war Colombia, they find that creating sustainable livelihoods is the most important aspect of environmental peacebuilding. In addition to this socio-economic dimension, governance as well as conflict transformation and negotiation also play crucial roles.

Finally, Kibaroglu and Sayan remind us that comprehensive peace treaties and the absence of confrontational interactions should not be the only benchmark for evaluating environmental peacebuilding success.⁹⁹ Studying cooperation among Turkey, Syria and Iraq in the Euphrates–Tigris basin since the 1960s, the authors introduce the concept of ‘imperfect peace’. They illustrate that despite the absence of a basin-wide treaty and the continuous existence of international tensions, environmental cooperation has played a role in easing water-related tensions and bringing the riparian states and communities closer together.

Conclusion

The contributions to this special issue share advances in research on environmental peacebuilding from different countries, across a range of resource sectors, at varying scales and highlighting the role of multiple actors. Many of these cases deal with disaster and humanitarian responses as well as peacebuilding in the aftermath of (often violent) conflict. By doing so, they address important theoretical and empirical gaps and thus advance the third generation of environmental peacebuilding research. In the context of rapid global environmental change and exceptionally high numbers of violent conflicts around the world,¹⁰⁰ such research is of major importance.

Given the time-frame in which they were written, the contributions to this special issue do not assess the COVID-19 pandemic, which will undoubtedly affect environmental peacebuilding programming across all governments, organizations and communities. Many environmental peacebuilding initiatives grapple

⁹⁸ Héctor Morales-Muñoz, Katharina Löhr, Michelle Bonatti, Luca Eufemia and Stefan Sieber, ‘Assessing impacts of environmental peacebuilding in Caquetá, Colombia: a multistakeholder perspective’, *International Affairs* 97: 1, Jan. 2021, pp. 179–99.

⁹⁹ Aysegül Kibaroglu and Ramazan Sayan, ‘Water and “imperfect peace” in the Euphrates–Tigris river basin’, *International Affairs* 97: 1, Jan. 2021, pp. 139–55.

¹⁰⁰ Pettersson and Öberg, ‘Organized violence, 1989–2019’.

with shared concerns around water, sanitation and hygiene (WASH) and humanitarian assistance. The destruction of WASH infrastructure has already complicated attempts to address the COVID-19 pandemic in war-torn countries like Yemen.¹⁰¹ Moreover, the lessons from environmental peacebuilding on how the acknowledgement of common interests and the addressing of shared threats can be an opportunity for collaboration and trust-building, rather than division and instability, may improve responses to COVID-19.¹⁰² These potential links with the crisis caused by the current global pandemic offer further evidence of the value of environmental peacebuilding both as an integrative research field and as a practice furthering peace, sustainability and development.

¹⁰¹ UNICEF, *Water: the essential lifeline* (New York, 19 May 2020), <https://www.unicef.org/yemen/stories/water-essential-lifeline>; see also Sowers and WeintHAL, ‘Humanitarian challenges and the targeting of civilian infrastructure in the Yemen war’.

¹⁰² Tobias Ide, ‘COVID-19 and armed conflict’, 17 May 2020, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3603248 (21/05/2020); Ilan Kelman, ‘Do health interventions support peace through “disaster diplomacy”?’; *Peace Review* 31: 2, 2019, pp. 158–67.